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Importance of Alcohol in Skin Preparation Protocols

To the Editor—The continued pursuit of lowering the risk of surgical site infection (SSI) has recently focused more attention on skin preparation solutions. Traditionally, no solution or technique for skin preparation has been widely held as superior to any other for preventing SSI after major operating room procedures. In the January 7, 2010, issue of *The New England Journal of Medicine,* Darouiche et al[1] report a lower incidence of SSI associated with clean-contaminated surgical procedures among patients prepared with chlorhexidine plus alcohol, compared with the corresponding incidence among patients prepared with povidone-iodine (without alcohol), in a well-done, tightly controlled clinical trial. Much excitement has been generated by these results.

Our group recently reported a large, quasi-experimental study in *Infection Control and Hospital Epidemiology*[2] in which we noted seemingly contradictory results, implying that a chlorhexidine-alcohol preparation was inferior to iodophor-based comparators. In contrast to Darouiche et al,[1] however, our study uniformly used alcohol as an adjunct to iodophor preparations and identified a lower SSI rate in the iodophor-alcohol preparation groups. Table 1 presents a side-by-side comparison of the results of these 2 studies.

Of note, the only 2 directly comparable groups (the chlorhexidine-alcohol groups) had very similar SSI rates of 9.5% and 10.1%, suggesting relatively similar patient populations.

TABLE 1. Surgical Site Infection (SSI) Rates (All Types) after Clean-Contaminated Surgical Procedures

Study, solution	Rate of SSI, proportion (%)
Darouiche et al[1]	
Povidone-iodine (without alcohol)	71/440 (16.1)
Chlorhexidine-alcohol	39/409 (9.5)
Swenson et al[2]	
Povidone-iodine-alcohol	44/541 (8.1)
Iodine povacrylex–alcohol	27/414 (6.5)
Chlorhexidine-alcohol	46/454 (10.1)

Although the difference in protocols might seem minor, the rapid bactericidal activity of alcohol may be a vital part of any iodine-based skin preparation.[3] The inclusion of alcohol in only 1 treatment arm in the study by Darouiche et al[1] weakens the applicability of this otherwise excellent study.

We agree with Darouiche et al[1] that the practice of using iodophors alone to prepare the skin for an operation is inferior to use of a chlorhexidine-alcohol solution and that the practice should be abandoned. However, we also believe that the question of preoperative skin preparation solution superiority cannot be completely answered without an adequate experimental comparison of chlorhexidine-alcohol to iodophor protocols that also include the critical bactericidal activity of alcohol.

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